

CLAIMS

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1 1. An inspection method for an array substrate, in which said array substrate
2 includes: a substrate; a plurality of gate lines, a plurality of signal lines and a plurality
3 of storage capacitor lines, which are disposed in an electrically nonconductive state on
4 the substrate in the form of matrix; a plurality of switching elements electrically
5 connected respectively to the plurality of gate lines and the plurality of signal lines; and
6 a plurality of storage capacitors electrically connected respectively to said plurality of
7 storage capacitor lines and said plurality of switching elements, said inspection method
8 comprising the steps of:

9 applying pulse signals from said plurality of storage capacitor lines to said
10 plurality of storage capacitors;

11 applying pulse signals from said plurality of signal lines to said plurality of
12 storage capacitors via said plurality of switching elements; and

13 measuring quantities of charges stored in the storage capacitors based on
14 potential differences between said two types of pulse signals.

1 2. An inspection method for an array substrate, in which said array substrate
2 includes: a substrate; a plurality of gate lines, a plurality of signal lines and a plurality
3 of storage capacitor lines, which are disposed in an electrically nonconductive state on
4 the substrate in the form of matrix; a plurality of switching elements electrically
5 connected respectively to the plurality of gate lines and the plurality of signal lines; and
6 a plurality of storage capacitors electrically connected respectively to said plurality of
7 storage capacitor lines and said plurality of switching elements, said inspection method
8 comprising the steps of:

9 applying pulse signals from said plurality of storage capacitor lines to said
10 plurality of storage capacitors; and

11 measuring quantities of charges stored in the storage capacitors based on
12 potential differences between said pulse signals.

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1 3. The inspection method for an array substrate according to claim 1, wherein
2 the pulse signals applied from said plurality of storage capacitor lines to said plurality of
3 storage capacitors and the pulse signals applied from said plurality of signal lines to said
4 plurality of storage capacitors via said plurality of switching elements are
5 simultaneously applied to said plurality of storage capacitors.

1 4. The inspection method for an array substrate according to claim 3, wherein
2 the pulse signals applied from said plurality of storage capacitor lines to said plurality of
3 storage capacitors and the pulse signals applied from said plurality of signal lines to said
4 plurality of storage capacitors via said plurality of switching elements have pulse rising
5 times different from each other.

1 5. The inspection method for an array substrate according to Claim 1, wherein
2 the pulse rising times of the pulse signals applied from said plurality of storage
3 capacitor lines to said plurality of storage capacitors are respectively different in said
4 plurality of storage capacitors.

1 6. The inspection method for an array substrate according to Claim 2, wherein
2 the pulse rising times of the pulse signals applied from said plurality of storage
3 capacitor lines to said plurality of storage capacitors are respectively different in said
4 plurality of storage capacitor

1 7. The inspection method for an array substrate according to Claim 1, wherein in
2 said measuring step, the quantity of charges stored in one storage capacitor among said
3 plurality of storage capacitors electrically connected to said storage capacitor lines is
4 measured.

1 8. The inspection method for an array substrate according to Claim 7, wherein
2 measuring of the quantity of charges stored in said one storage capacitor is performed
3 for all of said plurality of storage capacitor lines.

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1 9. The inspection method for an array substrate according to Claim 2, wherein
2 in said measuring step, the quantity of charges stored in one storage capacitor among
3 said plurality of storage capacitors electrically connected to said storage capacitor lines
4 is measured.

1 10. The inspection method for an array substrate according to Claim 9, wherein
2 measuring of the quantity of charges stored in said one storage capacitor is performed
3 for all of said plurality of storage capacitor lines.

1 11. The inspection method for an array substrate according to Claim 1, wherein
2 in said measuring step, the quantities of charges stored in said plurality of storage
3 capacitors connected to said signal lines via said plurality of switching elements are
4 measured.

1 12. The inspection method for an array substrate according to Claim 2, wherein
2 in said measuring step, the quantities of charges stored in said plurality of storage
3 capacitors connected to said signal lines via said plurality of switching elements are
4 measured.

1 13. An inspection device for an array substrate, in which said substrate
2 includes: a substrate; a plurality of gate lines, a plurality of signal lines and a plurality
3 of storage capacitor lines, which are disposed in an electrically nonconductive state on
4 the substrate in the form of matrix; a plurality of switching elements electrically
5 connected respectively to the plurality of gate lines and the plurality of signal lines; and
6 a plurality of storage capacitors electrically connected respectively to said plurality of
7 storage capacitor lines and said plurality of switching elements, said inspection device
8 comprising:

9 a pulse signal generating device connected to said storage capacitor lines and
10 said signal lines in order to apply the pulse signals respectively to said plurality of
11 storage capacitors; and

12 a circuit for measuring the quantities of charges stored in said respective storage
13 capacitors.

1 14. An inspection device for an array substrate, in which said array substrate
2 includes: a substrate; a plurality of gate lines, a plurality of signal lines and a plurality
3 of storage capacitor lines, which are disposed in an electrically nonconductive state on
4 the substrate in the form of matrix; a plurality of switching elements that are electrically
5 connected to each of the plurality of gate lines and each of the plurality of signal lines;
6 and a plurality of storage capacitors electrically connected respectively to said plurality
7 of storage capacitor lines and said plurality of switching elements, said inspection
8 device comprising:

9 a pulse signal generating device connected to said storage capacitor lines in
10 order to apply the pulse signals respectively to said plurality of storage capacitors; and
11 a circuit for measuring the quantities of charges stored in said respective storage
12 capacitors.

1 15. The inspection device for an array substrate according to claim 13, wherein
2 said circuit for measuring the quantities of charges stored in said storage capacitors is
3 connected to said signal lines

1 16. The inspection device for an array substrate according to claim 14, wherein
2 said circuit for measuring the quantities of charges stored in said storage capacitors is
3 connected to said signal lines.